

Claims**WHAT IS CLAIMED IS:**

1. Matable electrical connectors comprising:

(a) a receptacle comprising an insulative receptacle housing and
5 at least one conductive receptacle contact comprising a pair
of spaced walls forming therebetween a plug contact receiving
space; and

(b) a plug comprising an insulative plug housing and at least one
10 conductive plug contact comprising a pair of spaced walls,
said spaced walls each having portions that form a projecting
section engageable in the plug receiving space of the
receptacle contact said projecting section forming a medial air
gap.

15 2. The connectors of claim 1, wherein the receptacle contact walls are
substantially parallel.

20 3. The connectors of claim 1, wherein the plug contact receiving space
is located in a forward receptacle contact section of the receptacle contact.

4. The connectors of claim 1, wherein at least one terminal projects
from each of the receptacle contact walls.

25 5. The connectors of claim 4, wherein the receptacle contact walls
each have a panel section and the terminals extend from the panel
section.

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6. The connectors of claim 5, wherein the terminals extend from an edge from the panel section.

7. The connectors of claim 1, wherein the receptacle contact walls
5 include joining means for joining the receptacle contact walls.

8. The connectors of claim 7, wherein the joining means comprises at least one bridging element extending between the receptacle contact walls.

10 9. Connectors of claim 8, wherein the bridging element is integral with adjacent edges of each receptacle wall.

10. The connectors of claim 9, wherein the two receptacle walls and bridging element are formed from a single piece of stock.

11. The connectors of claim 1, wherein the projecting section of the plug extends from each of the spaced walls of the plug.

12. The connectors of claim 11, wherein the projecting section
20 comprises a pair of opposed plates spaced from each other by a distance less than a distance between said panel sections.

13. The connectors of claim 12, wherein distal portions of the plates converge toward each other.

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14. The connectors of claim 13, wherein proximal portions of the plates diverge from each other.

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15. The connectors of claim 11, wherein the plug contact walls are substantially parallel.

16. The connectors of claim 11, wherein at least one terminal projects
5 from each of the plug contact walls.

17. The connectors of claim 16, wherein the plug contact walls each have a lateral panel section and the terminals extend from the panel section.

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18. The connectors of claim 11, wherein the plug contact walls include joining means for joining the plug contact walls.

19. The connectors of claim 18, wherein the joining means comprises at
15 least one bridging element between the plug contact walls.

20. The connectors of claim 19, wherein the bridging element is integral with adjacent edges of each plug wall.

20 21. The connectors of claim 20, wherein the two plug contact walls and the bridging element are formed from a single piece of stock.

22. The connectors of claim 7, wherein the joining means includes structure for securing the receptacle contact in the receptacle housing.

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23. The connectors of claim 18, wherein the joining means includes structure for securing the plug contact in the plug housing.

24. A pair of mating connectors comprising:

a plug connector comprising an insulative plug housing having a mating interface for mating with a receptacle connector and a mounting interface, a plug contact cavity in the plug housing extending from the 5 mating interface to the mounting interface, the contact cavity having a pair of opposing side walls;

a plug contact received in the plug contact cavity, the plug contact comprising a mounting portion, the mounting portion having a pair of spaced walls, each wall being positioned adjacent one of the side walls of 10 the plug contact cavity, and a mating portion, the mating portion comprising an opposed pair of beams, the proximal portion of each beam extending from one of the plug contact walls toward the mating interface and having opposed, spaced interior surfaces in facing relationship and exterior facing surfaces, said exterior surfaces comprising contact 15 surfaces.

a receptacle connector comprising an insulative receptacle connector housing having a mating interface for mating with the plug connector and a mounting interface;

a receptacle contact cavity in the receptacle housing extending from 20 the receptacle mating interface to the receptacle mounting interface, the cavity having a pair of opposing side walls; and

a receptacle contact received in the receptacle contact cavity, the receptacle contact comprising a pair of opposed walls and means mounting each of the walls adjacent one of the side walls of the receptacle 25 cavity, said receptacle contact walls being spaced a distance to compressively engage the contact surfaces of the beams of the plug contact between the walls of the receptacle contact.

25. Connectors as in claim 24, wherein the walls of the plug contact and the walls of the receptacle contacts are substantially planar.

26. Connectors as in claim 24, wherein the walls of the plug contact are
5 substantially planar and the beams extend from an edge of a respective wall.

27. Connectors as in claim 24, wherein the plug contact further comprises structure joining the plates of the mounting portion and
10 wherein the receptacle contact further comprises structure joining the plates of the receptacle contact.

28. Connectors as in claim 27, wherein the joining structure of both the plug contact and the receptacle contact comprises at least one bridging
15 element extending between the plates and formed integrally therewith.

29. Connectors as in claim 27, wherein the joining structure comprises a forward bridging element extending between the contact walls and a
20 rearward bridging element extending between the contact walls, the bridging elements being formed integrally with said walls.

from the bridging structure

30. Connectors as in claim 29, wherein at least one bridging element on each of the plug contact and the receptacle contact includes a retaining element for retaining the contact in its respective housing.

31. Connectors as in claim 30, wherein each retaining element comprises a resilient member for imparting retention forces on the plates in directions substantially parallel to planes of the plates.

5 32. Connectors as in claim 31, wherein each retaining element comprises a cantilevered arm extending from the bridging element.

33. Connectors as in claim 32, wherein each arm has a proximal portion fixed to the bridging element and a distal portion extending away
10 from contact walls

34. Connectors as in claim 33, wherein each arm includes a locking surface for engaging a housing surface to secure the terminals against longitudinal movement.

15 35. Connectors as in claim 24, wherein the plug contact receiving cavity and the receptacle contact receiving cavity each have a top wall and the walls of respective contact terminals extend longitudinally beyond said top walls.

20 36. Connectors as in claim 24, wherein each wall of the plug contact includes locking structure adjacent the proximal end of each beam for locking the plate against transverse movement with respect to the plug housing.

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37. Connectors as in claim 24, wherein the receptacle contact cavity comprises opposed side walls and the receptacle contact walls are each disposed against one of the receptacle cavity side walls.

5 38. Connectors as in claim 24, wherein, when mated, the contact surfaces of the beams each engage one of the walls of the receptacle contact and substantial portions of the beams are separated from each other.

10 39. Connectors as in claim 24, wherein the receptacle housing includes an opening into the receptacle contact cavity, said opening having a lip disposed along each side wall and each lip has an insertion surface engageable by the contact surfaces of the plug contact upon insertion of the beams into the receptacle contact cavity.

15 40. Connectors as in claim 24, wherein the receptacle housing includes an opening at a location spaced from the mating interface, said opening communicating with said receptacle contact cavity and overlying at least a portion of the receptacle contact walls.

20 41. Connectors as in claim 24, wherein the plug housing includes an opening at a location spaced from the mating interface, said opening being in communication with the plug contact cavity and overlying at least a portion of the plug contact walls.

25 42. A terminal for an electrical connector comprising:
a pair of spaced generally planar walls;

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a bridging structure extending between and joining the plates;
a resilient, movable retention element on the bridging structure, the
retention element being movable to generate forces directed in the planes
of the walls.

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43. A terminal as in claim 42, wherein the bridging structure is integral
with the walls and the retention element comprises a cantilevered arm
extending from the bridging structure.

10 44. A terminal as in claim 43, wherein the arm includes a locking
surface near a distal portion thereof.

15 45. A terminal as in claim 43, wherein the walls, the bridging structure
and retention member are integrally formed from a single piece of
conductive material.

46. A terminal as in claim 45, wherein the walls are substantially
parallel.

20 47. An electrical connector comprising:

an insulative housing having a terminal cavity opening to a mating
face of the housing, the terminal cavity having spaced, opposing side
walls;

25 a terminal disposed in the terminal cavity, the terminal including
spaced walls, each wall being disposed adjacent a portion of one said
cavity side walls; and

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a retaining member for retaining the plates along said side walls with a space between the plates.

48. A connector as in claim 47, wherein a bridging element extends
5 between the contact walls.

49. A connector as in claim 48, wherein the contact walls have first and second opposed edges and the bridging element is located adjacent a first edge of each contact wall and the retaining member comprises resilient
10 member engageable with a portion of the terminal cavity extending between the side walls.

50. A connector as in claim 49, wherein the resilient member is a cantilevered arm.
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51. A connector as in claim 49, wherein each terminal cavity side wall includes a surface for engaging the second edge of each plate.

52. A connector as in claim 51, wherein there is a first opening in the
20 terminal cavity between each surface.

53. A connector as in claim 52, wherein the terminal cavity has a second opening in generally opposed relationship to the first opening.

25 54. A connector as in claim 47, wherein the terminal cavity includes an entry portion adjacent the mating interface, said entry portion comprising an entry wall located along a front portion of each side wall, said entry

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walls being spaced apart a distance substantially equal to or less than the distance between the contact side walls.